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EDUCATION ISSUE:

Listening for God



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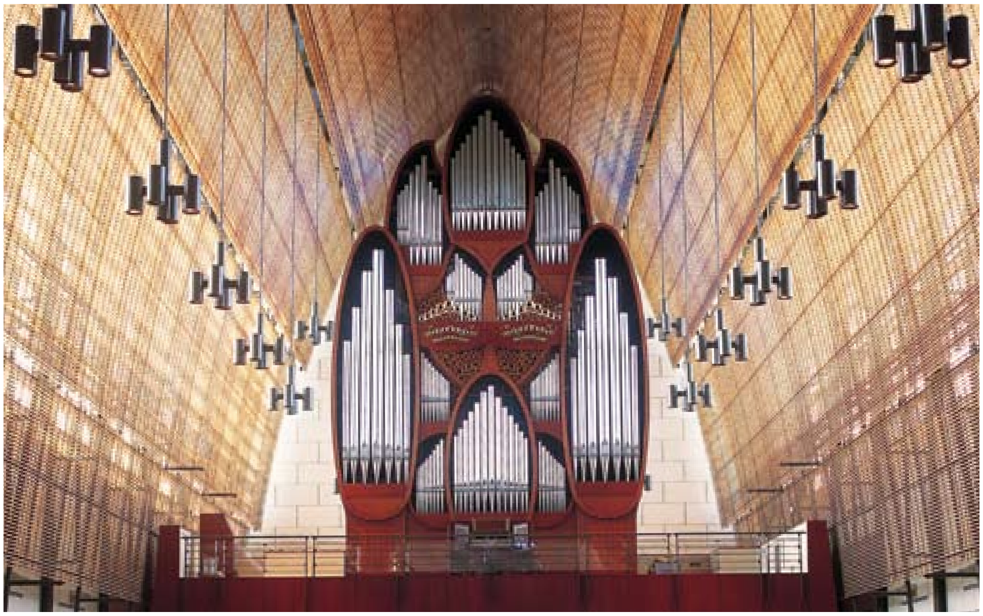
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An eclectic collection on selected subjects in sacred art and architecture.

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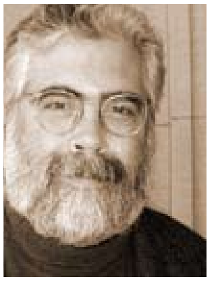


On the cover:
Interior of the Church of the Epiphany in South Miami, Florida, designed by Spillis Candela DMJM. Photo: Courtesy of Spillis Candela DMJM/Brian J. King, Sun King Studio.

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A Sound Education



Editor's Page ✶ Michael J. Crosbie

Welcome to an important new collaboration between *Faith & Form* and the Interfaith Forum on Religion, Art and Architecture (a knowledge community of the American Institute of Architects). Over the past year, representatives of *Faith & Form* and IFRAA have met and worked out an agreement to produce and distribute an Education Issue each year for all IFRAA members (IFRAA membership does not automatically include a subscription to *Faith & Form*). The first fruit of this collaboration is this issue, which focuses on the aural worship experience and how acoustics shape sacred space. Each year, *Faith & Form* and IFRAA will produce an Education Issue that will focus on a relevant subject of religious art and architecture. IFRAA conferences will be one source of content for these special issues.

AIA members will be able to earn continuing education units (CEUs) by reading this issue and then answering CEU questions accessible on the IFRAA website (www.aia.org/ifraa). A link to the CEU questions is posted on the *Faith & Form* homepage as well (www.faithandform.com). On our website you will also find archived articles from past issues. Along with the immediate educational benefits, introducing the journal to a pool of more than 4,000 new readers with an expressed interest in religious art and architecture will translate into a greater sharing of knowledge in future issues, as more IFRAA members subscribe and become part of the dialogue in the pages of *Faith & Form*. (If you are a new reader and you like what you see, please fill out and send us the subscription form on page 30.)

We know that great religious art and architecture grow from the science of sound. Dawn Schuette, an architect and acoustician (and an advisory member of IFRAA) explores in her article the elements of acoustics that shape sacred space. She gives guidance on working with building committees, and challenges our preconceptions about the aural worship experience; she has found for example, that amplifying sound is not always the best way to achieve an aural experience of clarity and transcendence.

Robert Poovey, an organist and historian with Casavant Frères, writes about the role of the organ in worship. Poovey traces the history of the organ back to the Egyptians. His account of how the organ became the "king of sacred instruments" cuts across many faith traditions, some of them non-Western. Robert also provides advice on how to place organs in various kinds of worship spaces.

One of the most influential movements in the design of Christian churches was spurred by the role of sound in liturgy. William Eakins, an Episcopal priest, discusses the development of the auditory church, its rise and fall, and how it continues to influence the design of sacred buildings to this day.

Taking a global perspective, musician and composer Roger Davidson writes movingly about how music can connect us in a worldwide fellowship of belief. Universal sacred music transcends all geographic boundaries, all creeds, and many cultures. From the global to the personal, Editor Emeritus Betty Meyer reports on the power of the aural experience in her own worship community.

Faith & Form and IFRAA are proud of this collaborative issue. We want your feedback and ideas for future Education Issues and new articles. Let us know how *Faith & Form* and IFRAA can better serve you. Drop a line or send an email to mcrosbie@faithandform.com.

Welcome to the discussion.

Michael J. Crosbie is the Editor-in-Chief of *Faith & Form* and can be reached by email at mcrosbie@faithandform.com



The Aural Environment for Worship

Church of the Epiphany, South Miami, Florida, designed by Spillis Candela DMJM. Photo: Courtesy of Spillis Candela DMJM/Brian J. King, Sun King Studio.

What are one's expectations upon first entering a worship space? They vary according to one's religious denomination, cultural values, experiences, and tastes. A few common elements, however, are powerful influences: the sense of space (intimate or grand); the aspect of light (its absence or control, with shafts of light from a concealed source or reference to the heavens, or from large openings that bathe a space in sunlight). But it is the aural experience — a hushed silence, a soaring reverberation, or an intimate voice — that can keenly reinforce the sense of the sacred.

By Dawn Schuette



Although sound is typically the sense that people find hardest to define, everyone reacts to the aural environment on an subconscious level. For example, a baby who makes a noise in a space that supports and allows her sound to soar will often stop, listen, and test the sound again, sometimes with even more enthusiasm! A quiet environment, with limited interaction, tends to quiet a child's desire to call out or sing. This sense occurs in everyone, and the environment of a worship space will influence the way in which a congregation uses it. The music program, preaching style, and congregational participation evolve in response to each particular worship space.

Dawn Schuette is a principal at the acoustics consulting firm Kirkegaard Associates in Chicago, Illinois, and an advisory member of the Interfaith Forum on Religion, Art and Architecture.

For an architectural and acoustic design to be successful, it is vital that there be good, open communication between church members and the professionals who assist them in the design and construction of a new worship space or in the maintenance and development of an existing one. Clergy, music directors, and lay members of a congregation cannot assume that designers know their desires or understand how they worship. Designers need to hear the language of their clients to accurately interpret the needs of a particular congregation.

This article explores how people react to different sound conditions and how the impressions and emotions that sound evokes can be augmented or diminished by the construction and finishes of a worship space.

Defining Acoustic Quality

For any type of worship, there is general consensus that certain basic acoustic qualities provide the best aural environment. Without question, clarity is a key component of a successful worship space. Whether the space is a reverberant cathedral or an intimate chapel, the spoken word must be clearly understood, and the congregation must be able to participate fully in dialogue and song. Clarity is particularly important for music, but it also creates an engaging atmosphere for all worship activities; it welcomes and brings people into the community experience.

One's ability to see strongly influences his ability to hear and both are critical factors for worship spaces, including the relationship of clergy to congregation, choir to congregation, and congregation members to each other. Direct line of sight is required for the initial sound to reach a listener, so the ability to see an altar or bema platform is a basic requirement for seating. Similarly, the relationship among congregation members is key to creating a good sense of community. The interaction of all participvants in worship was a major emphasis of the design for the Community of Christ Temple.



Community of Christ Temple in Independence, Missouri, designed by Helmuth, Obata & Kassabaum. Photo: Kirkegaard Associates.

Aural response is also linked to visual or tangible impressions. For example, people may complain that they cannot hear well if they are in an environment that is either too hot or too cold, or if the seating is not comfortable. Conventional wisdom suggests that wood walls are necessary to provide good sound, yet many of the most revered worship spaces with excellent acoustics have little or no wood surfaces. The warm look of the material, and perhaps the fact that wood surfaces are often tangibly warmer than stone or plaster, contribute to this perception.

Finally, a space must be free of distracting noise from the exterior, from mechanical systems and noisy activities in adjacent rooms. Otherwise, speech and music must fight to be heard clearly above the noise.

Describing Sound

People should not be intimidated by feeling that they do not know the correct, technical terms to describe sound. All can describe their impressions. Sound elicits strong emotional responses to a space. The following are just a few of the terms that I have heard from clients (and used myself) over the years.

Sense of "nakedness" or "being exposed"

These terms are often used when people feel they are singing or speaking alone, without support -- the result of a space that does not support sound. In a worship space, such a feeling can cause people to hold back in speech or song. Three common factors in building design elicit this feeling. First, a space may be too dry and not provide support or blend for the sound. This does not mean that reverberation in a room must last for four seconds to be good. Reverberation does not have to be extremely long to be supportive, but it has to be strong enough and just long enough to allow the sound to develop fullness and richness.

A common problem is an excess of sound-absorptive finishes close to the congregation: wall treatments, curtains, plush seating, and carpet. Another issue less commonly considered is a lack of balance in the space's frequency response: construction or finishes that remove either too much high-frequency sound or too much low-frequency sound. Either one can cause people to feel unsupported. Men's voices will sound thin in a space lacking bass response. A space that does not support high frequencies may cause women with high voices to hold back. Conversely, a space described as "engaging" provides ample support and a balanced frequency response.

"Dry," "dull," or "dead" sound

Generally, the term "dry" describes a space with a relatively short reverberation time. The length of reverberation time that feels right depends on the worship style. A worship style based on speech probably wants only a relatively short reverberation time to provide the best clarity. One that includes chant or traditional organ music may need a long reverberation time for the proper development of the sound. In this latter case, I have heard people describe a room as dry when it has a two-second reverberation time.

"Live," "full," or "rich" sound

These descriptors apply to a space with a moderate or long reverberation time where sound "blooms," or fills the space and envelops the participants. The emotional response is often quite powerful and uplifting to the spirit, bringing inspiration and a sense of excitement and grandeur. Such an acoustic condition is beyond the normal everyday experience, so it becomes a transformative aspect of the worship environment. Sufficient volume and the limited use of sound-absorptive materials are required to sustain sound for two seconds or more. The shape of the space is also important. A room with tall, nearly parallel sidewalls will sustain sound longer than an even taller space with a steep roof and lower sidewalls. The appropriate amount of volume and the proper use of materials will be determined by a number of factors: desired length of reverberation time, available height or building footprint, any existing limitations in construction (for existing spaces), room configuration (plan layout, balcony or not), and desired/expected finish characteristics. A congregation that chooses a significant amount of absorption in the form of padded chairs, carpet, and drapery should be aware that those materials have an impact on the sound quality. Length of reverberation is not the only factor in creating a full, rich sound. Strength of reverberation is also important. A small chapel may have limited volume, and with it a shorter reverberation time, but the shaping and finishes may be such that sound is sustained very efficiently and develops a richness and blend that can be quite pleasing.

Typically a "rich" and "enveloping" sound is well balanced. As noted earlier with regard to the sense of being exposed, people can sense on a subconscious level whether sound in a space is evenly supported at all frequencies. A sound that lacks low-frequency energy will be described as "weak." Sound that overemphasizes high-frequency sound will be referred to as "harsh," "brittle," or "scratchy." The common reaction to this characteristic is a sense of edginess or discomfort. Sound that lacks high frequencies will be considered "lifeless" and "dull." A well balanced



The Riverside Church in New York City. Originally designed by Henry C. Pelton and Charles Collens, the renovation architect was Gerald Allen & Jeffery Harbinson.

room response has neither too much high-frequency sound or excessive low-frequency sound. Construction materials must have enough mass to support bass energy appropriately for the room use, which in some cases will allow people to literally "feel" the music. Sound-absorptive materials should be limited or used carefully to avoid an excessive loss of high-frequency energy. This is particularly important for small rooms where a given amount of sound-absorptive material will have a larger impact than the same amount used in a large space. Surfaces must be well detailed to diffuse sound evenly and eliminate acoustic problems such as flutter (sound caught in a parallel geometry), which creates an edginess to the sound. Large, flat, parallel planes typically should be avoided.

Rarely can users define the desired reverberation time in their worship space. They know what they like or don't like only when they hear it. It is therefore helpful for church members and designers to visit some existing spaces and to discuss the positive and negative aspects of those rooms before the design of a new space.

Generally there is less participation in an acoustically dry room, whether speech or music is amplified or not. People will not speak or sing out when they feel theirs is the only voice, or that their voice stands out above the rest. A dry room does not provide a sense of envelopment. The lack of reverberation time, however, is not always a bad thing. A dry space can be used to enhance contemplation. A small chapel or an individual worship or meditation area may benefit from the sense of serenity that comes from a quiet, acoustically dry environment.

An amplification system for speech alone or for music and speech must be carefully designed in a reverberant space to assure intelligibility. It is easy to excite the reverberant volume and to generate conditions that are muddy, so it is critical that the audio system deliver as much sound as possible directly to the listeners and not upward into the space.

"Distant," "mushy," "hard-to-hear" versus "articulation," "transparency," "intimacy"

These terms are typically used with regard to the clarity and the presence of sound. Members of a congregation may not realize that this is the issue at hand, particularly when describing the sound of an existing space. A chaotic or unclear environment is distracting and tiring for listeners, and makes it hard for the congregants to find their place in a text or to sing along with a hymn. At worst, people may "tune out" entirely. Those with hearing problems strain in a space without clarity. Good clarity allows one to feel that she is having a private conversation with the person speaking, or is sitting close to a singer or instrumentalist. This acoustic intimacy engages people.

Strong, late reflections of sound create echoes. Such reflections result from wide sidewalls, high ceilings, or distant rear walls. Timing differences do not have to be great to create a significant echo; strong reflections arriving just 1/20th of a second after the initial sound will make confusing echoes for speech. Interestingly, when people use the term "dead spot," they are often referring to an echo rather than to a lack of sound. The echo interferes so much with the direct sound and early reflections that it is as if that original sound is completely lost. Focusing conditions (typically, concave geometries) that concentrate sound, often lead to echoes, because resulting strong reflections may, at times, be stronger than the original sound. Examples of this are gently concave ceilings or curved or faceted rear walls that follow a concave seating layout. Echoes must be controlled if clarity is to prevail.

Excessive buildup of sound in a space can make it hard to distinguish direct sound from the reflections of the preceding sound. Conditions of flutter (sound trapped in a parallel or similarly repeating geometry) can distort sound and lead to excessive sound buildup.

Too often the design of an audio system does not suit the conditions of the space. Care must be taken not to fill a reverberant room with amplified sound energy, as noted earlier. Loudspeakers covering a choir area, or monitors for amplified instruments will often create echoes if their sound reflects off walls or ceilings and interferes with the main amplification system for the congregation.

Although it may seem counterintuitive, increasing the level of sound amplification can diminish the clarity of speech or music. The louder the amplification level, the more likely that the room volume will be "excited" by the sound. Reflections become stronger and may begin to interfere with or completely mask the direct sound from the loudspeakers.

It is important to note that providing clarity for non-amplified music and speech is important in a room with a long reverberation time. A large warehouse can have a long reverberation time, but without proper shaping of wall and ceiling surfaces, the sound of a choir or speaker in such a space would be chaotic, distant, and inarticulate.

Quiet, Peaceful, Calm Environments

People find that a quiet space is comfortable, contemplative, peaceful, calming. Such spaces are hard to find today, so they can be an especially powerful part of any worship service. A quiet environment is powerful emotionally because it allows greater dynamic range for music or speech. Musical nuance evokes emotions of joy, sadness, excitement, grandeur. An orator can generate powerful emotion with dramatic pauses and alternately quiet and boisterous phrases.

People are not always aware how much they strain to hear above a general din. Unwanted or unnecessary noise is at best distracting and at worst tiring and unsettling. It is hard for anyone to concentrate or hear clearly if the levels of background noise (HVAC equipment, lighting hum, roadway noise, rain) are too high and threaten to cover the sound of speech or music. Control of background noise is especially important for those with hearing impairments.

Translating Good Sound Quality into Design

With input from religious leaders, music directors, and congregation members, and through careful use of materials the design team can achieve its desired effects. The building committee must communicate well with the congregation and with the architects, acoustical designers, artists, liturgical consultants, and other design team members. Experiencing and contrasting facilities firsthand is a great way to establish the baseline acoustic goals, desires for level of finish, and architectural style that will best suit the congregation. As the design progresses, regular communication and feedback are essential. The architect and the design team must communicate regularly with the building committee, describing the design decisions and the impact of those decisions on acoustics.

The examples that follow describe practical solutions to some of the most common acoustic challenges in worship spaces.

More Reverb in an Existing Space

The congregation of The Riverside Church *(photo page 8)* in New York City wanted to improve the reverberation time within the worship space. The space had a grand volume, but the dull sound did not match the visual impression. For an existing space like this, the primary concerns for reverberation are construction materials and room finishes. For Riverside, the major issue was that an acoustically absorptive material, Acoustolith, had been used in the original construction in 1931. This material looks like stone, but is porous and absorbs high-frequency sound. Rarely used now, Acoustilith was popular in the early days of amplified sound reinforcement as a means of controlling reverberation



Church of the Transfiguration, Orleans, Massachusetts, design by William Rawn Associates. *Photo: Kirkegaard Associates*

in a large space and improving the clarity of the spoken word. Its one advantage is that the material is fairly dense, so it is a good reflector of low-frequency sound.

The solution to Riverside's problem was to seal the material. To do this without changing its appearance, tests of clear masonry sealers were conducted. Sealer application was a complex process, but the result was the full, reverberant sound that a listener would expect upon entering a space of this scale. Clarity of sound was maintained because modern loudspeaker systems have much better pattern control for use in reverberant rooms.

Accent on Clarity

The Church of the Epiphany *(photos on cover and page 6)*, designed by Spillis Candela DMJM and completed just a few years ago in South Miami, Florida, is a large room of nearly one million cubic feet. We became involved in the project after the initial design and section of the room were determined. Although there was sufficient volume to provide a great acoustic condition for music, the main goal stated by the users was their desire for good speech clarity. The acoustic design goal was to provide a good, balanced sound for music while controlling echoes and excessive reverberation that might harm clarity of sound. Acoustically, the result is a space that is impressively live, with a supportive environment that deliberately stops short of cathedral-length reverberation. It is an excellent setting for the spectacular Ruffatti organ.

The church interior uses a large amount of glass. To assure a balanced sound for music, opaque surfaces within the room were made of heavy materials to support low-frequency reverberation. The end walls of the nave, apse, and transepts are precast concrete. Concrete on the roof deck also provides low-frequency reflection and ensures that the sounds of heavy rainstorms do not interrupt Mass. Precast panels at the lower sidewalls are slightly angled in section to direct the congregation's sound downward, encouraging congregational singing while avoiding flutter. Wooden pews are without upholstery to further support an engaging acoustic environment for the congregation.

A modest amount of glass-fiber paneling was added to the room to avoid excessive reverberation and to minimize echoes. Panels are located

on the underside of the pews and in a narrow band on the high ceilings at the extreme ends of the room. Panels were also integrated into the faces of the one-story structures behind the congregation, where they also provide echo control from the audio system.

The room includes separate voice and music reinforcement systems. Voice reinforcement uses two pairs of steerable array loudspeakers mounted to the base of the steel arch at the transepts. The loudspeakers near the pulpit and presider's chair provide good directional realism for speech. A series of small cabinets mounted below the clerestories and aimed down at the pews provides music reinforcement. The loudspeakers are delayed and zoned to accommodate sources from the choir loft or the chancel. The voice reinforcement system provides excellent clarity.

Engaging Sound in a Contemplative Space

The Church of the Transfiguration *(photo page 10)* in Orleans, Massachusetts, designed by William Rawn Associates, is a modern expression of an early Christian basilica. This form was selected as best suited to the monastic tradition and style of worship. Daily services, often sung in Gregorian chant are held for members of the religious community and the public. After visiting churches in Europe, the congregation leaders asked for a space with a soaring acoustic character but one that would also support quiet contemplation. The congregation rejected the use of amplification in the room for either speech or music.

The nave is a long, rectangular space with narrow side aisles whose height provides the desired long reverberation time for chant. The lower sidewalls, deeply sculpted with window recesses in the exterior wall, provide diffusion low in the space. The large entry doors at the rear wall incorporate sound absorptive materials behind a brass screen material to control echoes directly down the center aisle. Upper sidewalls are angled slightly at the band of the mosaic artwork and clerestory windows to mimic early architectural construction techniques of lightening the structure as the building rises. This construction provides natural flutter control and enhances the sustainment of sound in the upper volume.

Cast-in-place and precast concrete elements and grout-filled masonry comprise the enclosure of the room to provide full support of the non-amplified voice and organ. Stone and mosaics along the walls and apse ceiling are being added in phases and are directly applied to the concrete and masonry to assure a solid wall construction.

The apse is rounded in both plan and section at the altar. Shaping was incorporated into the lower bench that wraps the chancel to redirect the effect of the focusing geometry in the lower plane of the room. The curve of the ceiling at the chancel naturally enhances non-amplified speech and singing originating from the altar and the front of the room. The peaked roof of the nave is relatively shallow to support reverberation development in the upper volume of the space while preventing direct reflections from the high ceiling to the floor that would otherwise create echoes.

Background noise levels in the space are extremely low, which was not a small feat, given that the location of the air-handling fans and pumps had to be adjacent to the upper sidewall of the nave. Multiple layers of construction in the mechanical equipment room prevent direct transfer of vibration from the equipment to the nave structure. A series of shafts outside the space and tunnels below the nave floor provide sufficient distance to attenuate the sound of the fans and distribute air efficiently within the space.

Earn AIA continuing education credit for this article by answering the Education Issue questions posted on the IFRAA website: www.aia.org/ifraa.

King of Sacred Sounds



Photo: Michael Perrault

A "modern Italianate" organ case by Casavant Frères harmonizes well with the Byzantine-Romaesque architecture of St. Clement's Parish in Chicago.

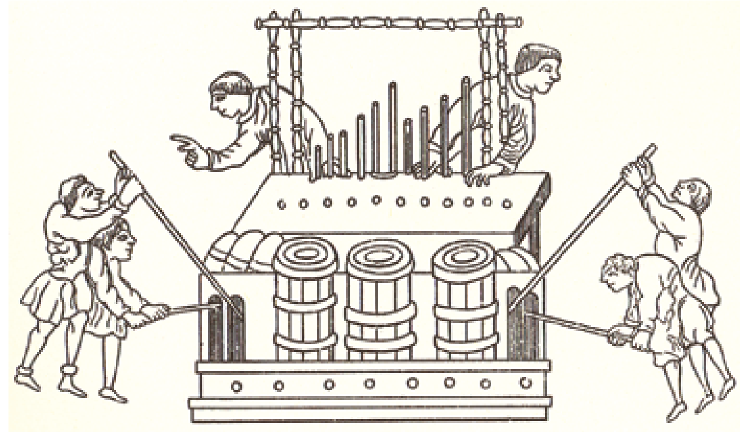


Photo: Benoit Gendron

By Robert Poovey

The organ, more specifically the pipe organ, declared by Mozart to be "forever the King of Instruments," is one of the oldest and by far the most complex of all musical instruments. For nearly 2,000 years it has served as the choice when a single musical instrument was deemed necessary or desirable to command sonic attention or assume leadership in a large space be it a stadium, a concert hall, a church, or a synagogue.

Robert Poovey is Project Director for Casavant Frères, a pipe organ company located in St-Hyacinthe, Québec, Canada. He holds the degree Doctor of Musical Arts in Organ Performance from the Eastman School of Music (1989), and from 1995 to 2006 was Music Director and Organist at historic St. Luke's Episcopal Church in Atlanta, Georgia.
Dr. John Westerhoff, Theologian-in-Residence at St. Anne's Episcopal Church in Atlanta, provided valuable comments and suggestions on this article.



This interesting drawing of a hydraulis appears in the 12th-century "Psalter of Eadwine." Note that there are two players, both of whom have a preoccupation with the men operating the pumping mechanism.

Historically the pipe organ is the close relative to the pipes of Pan. Three elements are required: pipes representing specific pitches; a steady wind supply to make the pipes sound, and a means to control the sounding of the pipes. The earliest known instrument with these attributes is generally thought to have been invented by Ktesibios of Alexandria around the middle of the 3rd century B.C.E. This instrument employed water pressure to steady the wind and was known as a hydraulis (water organ). Over the next six centuries other similar instruments were developed by the Arabs and in Byzantium and by the 3rd century C.E. organs using weighted bellows to steady the wind were as prevalent as the hydraulis. After the collapse of the Roman Empire the water organ disappeared altogether in favour of the bellows organ and the art of organ building continued to develop in what is now the Middle East.

These ancient precursors to the modern pipe organ were used almost exclusively in secular settings—in theatres, at festivals, and in amphitheatres as well. The use of organs at sporting events today is most certainly a striking contemporary parallel! It is interesting that although the organ was very much a part of Byzantine and Arab secular society, the instrument has never played any significant role in Eastern Orthodox Christian tradition; neither has any evidence at all surfaced that it has ever been used in Islamic worship. These faith traditions center their worship totally outside of secular influence, and this may be why the organ is not used for worship.

Exactly how the organ became the instrument of Western religious traditions and why it played no known secular role at all for several centuries is an odd historical twist that remains a mystery. Its introduction to Christianity being generally attributed to Pope Vitalian in the 7th century is probably more the stuff of legend than of fact. The earliest concrete evidence of organs in Christian churches dates to the 9th century: it is known that a Venetian priest in Aachen undertook to build a hydraulis during that period, and Benedictine monks in Spain might have learned organ building from Arab instrument makers around the same time.[1]

That the earliest church organs were installed in monastery chapels suggests that monks built them. There is, however, scant evidence indicating conclusively that they were used liturgically before the 12th century.

There was considerable controversy over the organ's presence in churches. Philip Schaff writes:

> *The attitude of the churches toward the organ varies. It shared, to some extent, the fate of images, except that it never was an object of worship... The Greek Church disapproved the use of organs. The Latin Church introduced it pretty generally, but not without the protest of eminent men, so that even in the Council of Trent a motion was made, though not carried, to prohibit the organ at least in the Mass.*[2]



Photo: Keith S. Toth

At the Brick Presbyterian Church in New York, the visual design of this late French-Symphonic-style organ by Casavant Frères takes cues from the gentle curves, pilasters, and dentil moulding found in the chancel of this stunningly restored sanctuary. The carvings found in the console are copied from those in the altar.

Some of the objections were based on tradition: since Christian liturgy drew heavily from Jewish practice, and since at the time instrumental music was not used in synagogue worship, many early Church leaders were uncomfortable breaking with the norm; other objections were formed on the grounds that the organ and its predecessors were associated with use in secular settings and that they were very, very loud—certainly an unwelcome element within the dignity and solemnity of the Mass. In any case, by the 13th century its liturgical use was well established.

Following the various reformations of the 16th century, the Catholic Church retained the organ as an integral part of liturgy: it was used in various ways as an accompaniment to choirs[3] as well as to signal various key points in the Mass (i.e., its beginning, the elevation of the Host etc.). In Lutheran congregations the instrument was used to lead congregational singing and as a solo instrument for preludes and postludes. Protestant Reformed congregations followed a different track altogether in which no instrumental music at all was permitted during services. Vocal music was regarded as the only acceptable form for liturgy and a vigorous tradition of congregational psalm singing developed. Fortunately the organs were not destroyed (as they were in England under Cromwell), and they were played during the week when churches were open, and sometimes before and after services. By the 17th century it seems that organs were once again approved for use in Reformed liturgy, perhaps because leadership was necessary to keep the congregational singing together.[4] In the New World, the Puritans dubbed the organ “the devil’s bagpipes” and, like the Protestant reformers in Europe, they regarded the human voice as the only musical instrument appropriate for worship. Nevertheless, even the Puritans eventually relented and allowed organs and other instruments beginning in the early 18th century.

In Jewish tradition, there is evidence that the hydraulis may have been used in the latter years of the Second Temple in Jerusalem (6th century B.C.E. to 1st century C.E.) as a part of its worship.[5] After the destruction of the Temple by the Romans in 70 C.E., the rabbis declared that music, a symbol of joy, should be eliminated from worship as a sign of Judaism’s loss – both of its edifice and its independence.[6] In the 17th century organs are known to have been placed in synagogues in Venice and Prague,[7] but it was not until the Reform Movement in Germany in the 19th century that organs were once again regarded as a desirable element in worship.[8] That trend spread quickly, perhaps more in the U.S. than anywhere else, and organs were used in much the same manner as in other traditions: to accompany cantors and choirs, and to lead congregational song.

In this cursory historical overview one can discern three distinct ways the organ has been used in churches from early times to the present day. Keeping in mind that no other single instrument is capable (without amplification) of creating the sound energy necessary to fill such large spaces and lead the singing of a substantial body of people, first and foremost it has served as a support to that singing—whether by cantors/choirs or a congregation. Second, in Catholic tradition it was used to signal various points in the Mass. Third, it has served as a solo instrument, as in Reformed and Lutheran traditions.

Evoking Emotion and Setting a Mood

If one wants to get at the heart of the various ways the organ finds use in worship, it would seem that evoking emotion or setting a mood is at that heart. One could argue that the first church organs served as awe- or fear-inspiring devices, to remind congregants of the power not only of God but also of the priests. The very nature of the instrument—a sort of one-person orchestra with extraordinary color and dynamic possibilities—enables skilled organists to choose sounds (registrations) appropriate to whatever music is offered at any given time. A rousing entrance hymn played confidently and in a manner appropriate to the words is a wonderful vehicle for instilling

a sense of excitement and expectation for what is to follow in a service. A communion hymn would receive a very different treatment. As an organist I have devoted much practice time to "painting" the texts of hymns, anthems, and psalms through my registrations.[9]

In some traditions solo organ music is not infrequently employed to cover action[10] or as an accompaniment to spoken prayers—I recall having heard ethereal, angelic sounds in those contexts as a child.



Photo: Benoit Gendron

The façade pipes in the Casavant Frères organ at Montréal's magnificent Notre-Dame Basilica have gold leaf on their mouths as well as stenciling at their tops.

But as a solo instrument the organ is mostly heard in the preludes and postludes that typically frame liturgy. Therefore, since organ music is frequently both the first and last sound one hears upon entering sacred space for worship or leaving it to return to the world, the instrument has great power as the vehicle to set a tone appropriate to each of those experiences. We organists command quite a lot of power under our hands and feet and I believe our most important task is to use the instrument we play (as well as our talents) always to support liturgy and to enhance the experience of our parishioners in the most positive way, from the first note of the prelude through the final chord of the postlude. That music in general can stir the heart is irrefutable; that in liturgy and in the hands of skilled players the organ has proven itself the liturgical master of that trait more effectively than other instrument is a matter of historical fact.

Worship in many places today relies on instruments other than the organ. "Praise bands" and other ensembles consisting of a variety of instrumentations are common. Also, synthesizers and digital alternatives to pipe organs are prevalent and they do possess desirable capabilities, at least in terms of their respectable imitation of acoustic instruments and their lower cost.[11] These instruments find use in some traditional as well as contemporary worship. Aside from the cost factor, that these digital instruments are so common seems at odds with scripture—Psalm 150 and other texts describe the use of many different instruments in worship, all of which in some way or another move air by means of naturally occurring vibrations rather than by those induced by loudspeakers.

An Instrument Tuned to Sacred Space

Many people are not aware of the amount and kind of space a pipe organ can occupy. Lack of appropriate height is perhaps the most pernicious problem, but lack of an adequate "footprint" is also very prevalent, both in existing buildings and in new construction. Particularly in the case of new construction and renovation projects where the installation of a pipe organ is contemplated, everyone involved is well advised to see a pipe organ that serves a space of similar size, if only to see what space is necessary for such a complex instrument. To visit a pipe organ builder's shop is also a good idea, and most builders are delighted to take visitors through their shops. Seeing artisans at work, making the thousands of parts that go into the construction of a pipe organ, provides valuable information to those involved with church or synagogue design, be they architects, liturgical consultants, or clergy.

A church or synagogue embarking on the adventure of building a new worship space is well advised to contact pipe organ builders very early in the design process so that there exist open lines of communication and a good understanding of the desire for an appropriately sized and appointed instrument from the beginning—pipe organs as afterthoughts are not often successful. Engaging a good pipe organ consultant can be valuable in helping an organ committee educate themselves about the instrument generally, as well as to determine certain specifics of their particular project. It is also wise to contract with a reputable independent acoustical consultant who has an established track record working with pipe organs in liturgical spaces. Committee members should nterview possible candidates/companies just as they would any other professional.

Once the architect, consultants, and church committee have acquainted themselves with the actual space an organ might occupy, probably the most important question to ask is where the organ will be positioned. In a rear gallery? Front and center? In specially designed chambers (either in the chancel or in a gallery)? Answers to this question have not only aesthetic and musical implications, but also theological ones. Front-and-

center installations can be very satisfying from an aesthetic and musical point of view, but theologically speaking they run the risk of being more the center of attention than is desired. Chamber installations do not distract from other focal points in a space, but musically these installations sometimes are not successful. Generally speaking, rear gallery organs have the advantage of speaking directly into the space while not diverting attention from other important elements in the space.

Rediscovering the Pipe Organ

Though a discussion of particular musical trends within various traditions is beyond the scope of this article, there is considerable evidence that many churches that years ago "went contemporary" are now beginning to rediscover the value of traditional music. What once was a one-way street is now, happily, two-way, and the potential of cross-pollination between the best of both traditions–liturgically, musically, architecturally, acoustically–is greater than ever before. This trend has positive implications where the pipe organ is concerned.

Pipe organ building is as active an art as ever, with many builders needing several years from the signing of a contract to the delivery of a new instrument. As with the rediscovery of traditional music on the part of churches founded on contemporary models, they seem at the same time slowly but steadily to be discovering the pipe organ. Over the last decade or so churches that already have pipe organs are more interested in restoring/renovating them rather than replacing them with either a new pipe organ or a substitute. Despite the cries of doomsayers, there is scant evidence that the place of the pipe organ in churches and synagogues is anything but secure. Long live the King of Instruments!

Earn AIA continuing education credit for this article by answering the Education Issue questions posted on the IFRAA website: www.aia.org/ifraa.

[1] Peter Williams and Barbara Owen, *The New Grove Musical Instruments Series: Organ* (New York, 1988).

[2] Philip Schaff, *History of the Christian Church*, Vol. 4.

[3] This accompaniment was not in the sense that we know it today but rather the *alternatim praxis* in which the organ alternates with the choir, i.e., the choir sings a verse (of a canticle, such as *Magnificat*), followed by the organist playing the next verse.

[4] Schaff, in *History of the Christian Church*, continues: "The Lutheran church retained, the Calvinistic churches rejected it, especially in Switzerland and Scotland; but in recent times the opposition has largely ceased."

[5] Rabbi David Rosen, "Did You Ever Wonder Why the Organ Is Played In Some Synagogues But Forbidden In Others?", in *BYLines* (Houston, Texas: Congregation Beth Yeshurun, October 29, 1999).

[6] Ibid.

[7] Ibid.

[8] In Conservative congregations, however, organs are still not entirely welcome and their use remains a topic of debate.

[9] I recall hearing an extraordinary accompaniment to one of the Psalms at Evensong in a British Cathedral; one of the verses spoke of "the mouth of the lion" and at that point the organist, in the space of mere seconds, imitated a lion's roar through the use of a very deep-toned and raucous sound.

[10] For example, in a wedding ceremony, when the bride and groom move towards the altar to make their vows.

[11] Over the course of decades, however, these instruments typically do not prove as cost-effective as would appear at initial investment. Also, technology advances so quickly that they are perpetually out-of-date. Such may seem to be "the old arguments" against investing large sums of money in electronically imitative instruments; nevertheless, this rationale still holds true much of the time.

Faith and Hearing: The Rise and Fall of the Auditory Church



Photo: Michael J. Crosbie

By William J. Eakins

Visiting the cathedral in Toledo, Spain, last fall I was struck by the limited vision the great building's design provided for the lay worshippers. I had seen the same liturgical arrangement in the cathedrals at Burgos and Cuenca: a choir area with solid masonry walls filling much of the east end of the nave and entirely blocking the congregation's view of the high altar and much of the rest of the cathedral's interior. When I commented on what seemed to me a strange phenomenon, my Spanish guide replied, "We Catholics do not need to see the Mass; all we are obliged to do is hear it."

I could not help wondering, however, how well a congregation in a cathedral like Toledo's could actually fulfill their obligation to hear Mass if not for the modern sound system and strategically placed television monitors. St. Paul declares, "Faith comes by hearing,"[1] but it is clear that providing for such hearing, at least in regard to the laity,has not always been the highest priority in the design of churches. Sometimes hearing has taken a back seat to other concerns even in Anglicanism, a Christian tradition whose beginnings were strongly influenced by recognition of the vital role of hearing in public worship.



Photo: Courtesy of Susan W. Pieroth

Trinity Church in Newport, Rhode Island, is an example of an auditory style church with a prominent pulpit.

According to the Acts of the Apostles, the first Christians shared their property, ate meals in common, and prayed together daily both in the temple and in each other's houses.[2] This pattern of a highly personal community life centered on a house/church continued for the next 300 years. Beginning in 313 C.E., however, with the adoption of Christianity by Constantine as the official religion of the Roman Empire, church life was radically changed as it adapted to its new role of state institution. Gone was the family-like community gathered in an intimate setting; in its place was the basilica, a large assembly hall where large congregations met to attend formal Eucharistic liturgies that were very different from the "breaking of bread" table fellowship of the apostolic age. Over the ensuing centuries these liturgies became more and more elaborate, and the context of their celebration more and more remote from the daily lives of most Christians. By the end of the Middle Ages, the Mass had become a rite performed by the clergy in a language the great majority of the laity did not understand and in a liturgical space considerably removed from where most of the congregation gathered.

With the publication of the first *Book of Common Prayer* in 1549, reformers in the Church of England sought to recover what they understood to be the spirit of worship in the apostolic age. The prayer book's aim was to make the worship of the Church accessible, understandable, and biblical. The preface to the first *Book of Common Prayer* decries the fact that, "whereas St. Paul would have such language spoken to the people as they might understand … the Service in the Church of England … hath been read in Latin to the people, which they understood not; so that they have heard with their ears only; and their hearts, spirit and mind, have not been edified thereby."[3]

Prayer-book worship in English was intended to change all that through the persistent exposure of congregations to a steady diet of readings from Holy Scripture and to services using scriptural language.

The effective implementation of prayer-book worship, however, proved to be a challenge. For one thing, the church buildings the Church of England had inherited from the previous centuries were largely unsuited to common prayer. Deep chancels, separated from the nave by rood screens, had been built for the use of the clergy or monastic communities and not for the laity. Although the chancels were not completely separated from the nave, altars and congregations were certainly remote from each other. How were such buildings to be used for the new prayer-book liturgies that were conceived as the work of the whole congregation, not just the clergy? An influential reformer of the period, Martin Bucer, identified the problem thus: "because the end of all ceremonies of the church is the effective building up of faith in Christ … it is necessary that the things said and done in the sacred assemblies should be well understood by all present. For that the [chancel] should be so distantly separated from the rest of the temple and the service … be set forth in it alone, is anti-Christian."[4]

Over the course of the next 200 years, a number of rearrangements were tried in order to adapt medieval churches for prayer-book worship. Pulpits and reading desks for the daily offices of Morning and Evening Prayer were moved out into the nave. Permanent stone altars were destroyed and replaced by wooden Holy Tables. These Holy Tables could be placed in the nave itself or in the western end of the chancel to form a communion stead. All of these rearrangements were intended to bring the clergy out of the chancel and among the people so that all could worship together as one body and everyone could clearly hear what was being said.

It was the Great Fire of London in 1666 that provided the first significant opportunity for building churches specially designed for worship from the *Book of Common Prayer*. Appointed as architect for the

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Photo: Mark Fleming, courtesy of All Saints Margaret Street.



The deep chancel of All Saints Margaret Street in London is typical of Ecclesiological churches that became popular in the Anglican Communion in the mid-19th century.

rebuilding of more than 50 churches destroyed in the conflagration, Christopher Wren developed what he called the auditory principle of ecclesiastical architecture:

"In our reformed religion, it should seem vain to make a Parish church larger than that all who are present can both hear and see. The Romanists, indeed, may build larger churches, it is enough if they hear the Murmur of the Mass, and see the Elevation of the Host, but ours are to be fitted for Auditories. I can hardly think it practicable to make a single Room so capacious … as to hold above 2,000 Persons, and all to hear the Service, and both to hear distinctly, and see the Preacher."[5]

The building plan that Wren devised in the Renaissance style and consistent with the above auditory principle is characterized by a rectangular, almost square nave surrounded by galleries on three sides, a large elevated pulpit, a shallow apse for the Holy Table, and a rear gallery reserved for lay choir and organ. The object of the whole design was to bring people as close as possible to the minister leading the service. The deep chancels of the medieval churches which had proved to be so inconvenient for prayer-book worship were eliminated.

For almost 200 years, Wren's auditory design provided the model for new churches for Anglican congregations and the congregations of other protestant denominations in both Britain and in the colonies. Even when in the late 18th and early 19th centuries, romanticism introduced an interest in the picturesque possibilities of the Gothic and Classical Revival styles, these new tastes did not change basic church design. The auditory church continued whether dressed with Gothic or Greek architectural detail.

In 1839, however, a movement began in the Church of England that before the end of the 19th century radically changed the design of Anglican churches. This highly influential movement was launched with the founding of the Cambridge Camden Society. Inspired both by the Catholic Revival theology of the Oxford Movement and by the ideals of romanticism, the Cambridge Camden Society set out to breathe new life into the Church of England by placing its worship in the setting of medieval architecture and ceremonial.

While the Oxford Movement (and its Tractarian theologians such as Newman, Pusey, Keble, et al.) focused on correcting the theology of the Church of England, the Cambridge Movement sought to correct the Church's architecture and worship. In doing so, the leaders of the Cambridge Movement invented a new term: Ecclesiology, the study of the proper way of building and equipping churches.

The Ecclesiologists dismissed the auditory church architecture of the 17th and 18th centuries

as debased and pagan and vigorously promoted their idea of perfection: the medieval church of the 14th century. The chief characteristic of such a church and the feature that most concerned the Ecclesiologists was a deep chancel from one-third to one-half the length of the nave. It was here that the rites and ceremonies of the medieval church were performed. Ecclesiologists, wishing to revive the beauty and power of this ancient ritual, particularly the Eucharist, sought to recreate its architectural setting. It was thought that the sight of splendidly vested clergy performing with solemn ceremony the liturgies of the *Book of Common Prayer* could not help but quicken the congregation's sense of worship.

The Ecclesiologists propounded an idea of worship that was very different from that of the several previous centuries since the Reformation. For the reformers, worship was aimed mainly at the rational mind via the ear. Hearing the words of the liturgy, especially the sermon, was of primary importance. A right understanding of the Word of God was the goal, with the assumption that once people were in possession of the Truth of God they would then behave with godliness. For the Ecclesiologists worship was aimed at the imagination and the heart via all of the senses. A sense of mystery and awe in the presence of God was the goal, with the assumption that the devotion and admiration evoked by such experience would produce exemplary Christian behavior.

The Ecclesiologists were extraordinarily effective in winning acceptance for their model of the ideal church building. From about 1850 onward, practically every Anglican house of worship in Great Britain, the United States, and in the British colonies was built according to Ecclesiological principles in approximation of 14th century Gothic style and with a deep chancel. Also, in America in particular, churches built before the advent of Ecclesiology underwent extensive alterations in the second half of the 19th century in order to add the requisite deep chancel.

Why were the Ecclesiologists so successful? Perhaps the greatest reason was that people were ready for a new experience of worship, one that would appeal to their imagination and feelings and not just to their reason. On a practical level, however, the Ecclesiologists were successful because they came up with an attractive new purpose for the large chancels they so strongly advocated: they would provide space not just for officiating clergy but for a vested lay choir. So familiar has such a choir now become that it is seldom realized that it is not an ancient custom but an innovation by the Ecclesiologists of the 19th century. It was an innovation that justified the design and expense of the Ecclesiological church and won its acceptance by Anglican congregations and by congregations of many Protestant denominations.

Since the middle of the 20th century, however, the Ecclesiologists' quasi-medieval church has become increasingly unsuitable. Anglican liturgical thinking, while continuing to recognize the importance of much of what the 19th century recovered in the way of ceremony, vestments, and the like, has come to a fresh appreciation of worship as a corporate activity. This development, paralleling the liturgical renewal movement of the Roman Catholic Church, has been informed by study of the practices of the primitive Church and by a theology that emphasizes the Church as a community and not merely an organization. Liturgy has come to be seen as the work of the whole church and not just something led by the clergy for the edification of the laity. As a result, the deep chancels of the Ecclesiologists, with congregations separated from the clergy at the altar for the sake of holy mystery are now widely seen as anachronistic encumbrances. Various rearrangements of the worship space in Ecclesiological churches have been tried, many of them involving moving the old altar out from the east wall and closer to the congregation. Sometimes Holy Tables have been introduced in addition to or replacing the old altar. It has, in fact, been a



process reminiscent of the same experiments tried 500 years previously by the reformers to adapt medieval churches for prayer-book worship. The added element in the contemporary challenge, however, has been figuring out what to do with the vested lay choir. In some churches the choir still occupies the chancel; in others the choir has been moved out onto the floor of the nave or into a gallery at the rear of the church.

What is clear is that the age of the Ecclesiological church is over and new models for church buildings are emerging. It is interesting to note the degree to which these new models show an appreciation for the auditory principle that produced the Anglican churches of the 17th and 18th centuries. Altars, lecterns, and pulpits are placed close to or even in the middle of the congregation, with seating arranged around the center of worship. Congregations are once again building houses of worship that recognize the corporate nature of the Christian worshipping community and enable these communities to listen to one another and to God.

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[1]Romans 10:17.

[2]Acts 2:44-46.

[3]*The Book of Common Prayer.* The Church Hymnal Corporation, New York, 1979, p. 866.

[4]Martin Bucer. *Scripta Anglicana*. Basel, 1577, p. 457.

[5]Letter to a friend, published in *Parentalia or Memoirs of the Family of the Wrens, Compiled by His Son, Christopher, Now Published by His Grandson, Stephen Wren, Esq.*, London, 1750.





Universal Spirituality Through

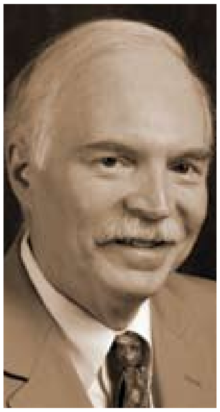


Photo: Biniana Huang Matheis

By Roger Davidson

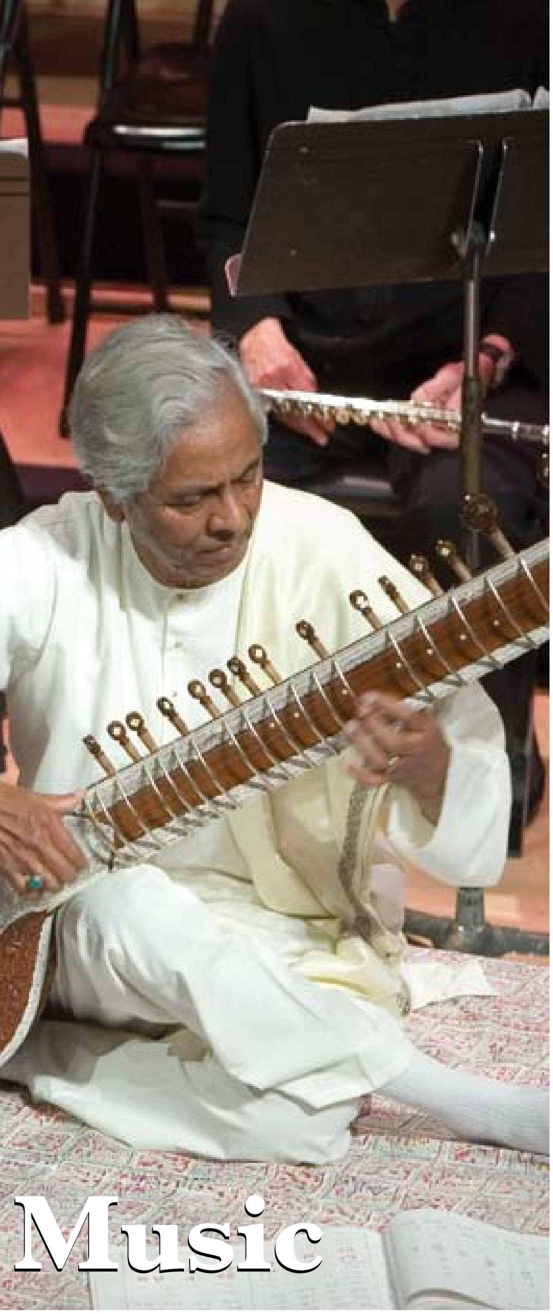
Since human beings first discovered music, we have had a vehicle other than speaking through which to express our feelings other than speaking. I would have loved to be there when the first songs were sung. I believe that already then, people had an inner sense about communicating that which cannot be adequately expressed through speech. Also, when the earliest human beings first looked up at the sun and felt that there was a divine source, they aspired to connect with a supportive power far greater than themselves or their communities. Perhaps, indeed, an inspiration for the formation of the first communities was a feeling not only of kinship but of spiritual brotherhood and sisterhood that came through in the earliest songs and chants.

Where do such feelings come from? From the inner feeling we all have somewhere in our beings that there is a creative, protective and nurturing power in the universe – a source of help we can all turn to. From the time the earliest religious chants and songs were uttered, people were able to experience the unique connection with the Divine that happens through music. Music enhances words and can be a special kind of bridge between the world we live in and the beyond.

In various parts of the globe, at different times, spiritual leaders in different cultures began to lead their followers in certain rituals, ceremonies and celebrations, worshiping some form of deity. Some of the great spiritual leaders taught principles by which they believed human beings should live and certain beliefs about the Divine; eventually systems known as religions came to be. As time passed, many teachings were added and new systems of belief arose, some in conflict with others. Despite the differences that still exist today, however, a common thread has essentially remained: our fundamental connection with a power greater than ourselves.

When I started to write what I later called "universal sacred music," I realized that much

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Left, at the 2nd Festival of Universal Music Roop Verma, composer and master sitar player, performs his Concerto for Sitar and Orchestra with the instrumental ensemble, preceded by a Sanskrit chant performed by Deepak Kumar Pareek, vocal, and Naren Budhakar, tabla. Photo: Pavel Antonov



Above, composer Nicholas Ng (left) of Canberra, Australia, plays the Chinese erhu during the performance of his composition, The Great Invocation, with the Foundation's choir and instrumental ensemble. Photo: Pavel Antonov

traditional sacred music speaks mainly to those who adhere to specific sets of beliefs that are not or could not be shared by all humanity. What is needed for the future of sacred music are texts that may be rooted in existing traditions but are selected or modified to reflect those points of truth which we have in common and which therefore can unite us rather than divide us. Many passages in the world's scriptures speak of a God who is exclusive rather than inclusive, who is full of contradictions and who does not love all human beings unconditionally. For example, the belief that humanity is divided into those who are saved and those who are damned does not reflect what I believe to be the true nature of God, which is one of eternal love and infinite compassion. Nor does the depiction of God in certain scriptural passages as a vengeful or jealous deity reflect the true nature of God. It is unconditional love that is at the basis of universal sacred music, which in essence is music that is meant to bring peace to all those who hear it by communicating, through words and music, that we are all loved and valued equally, now and forever. Universal sacred music is meant to convey the reverence and yearning for the Divine that we can all connect with through the Divine spark that comes from God and is and will be within each of us. This feeling of reverence can be all the greater when the music is based on texts that convey the unconditional love of God.

What follows naturally is the need for the creation and collection of universal sacred music, to assist with the spiritual evolution of mankind. Without calling it universal sacred music until much later, I found myself in the early 1980s writing choral music, songs and chants based on texts that reflected the unity and universality of God, and the inclusive attitude that I believe God has toward us all.

Can universal sacred music help us in our spiritual evolution? It has been my experience, through the concerts and events presented by the Foundation for Universal Sacred Music, that people respond in a special way to concerts of such music, because it touches us in the place in our hearts that knows we are all children of God, and that we have come together to celebrate this fact of humanity that is so often forgotten. Universal sacred music can also, as I mentioned earlier, convey the idea that God loves us unconditionally and eternally. When these messages, and others related to them, are conveyed through music, we are comforted and given greater inner peace. And yes, universal sacred music is about creating peace, both inwardly and outwardly. To create lasting peace in the world, all of humanity must become aware of God's unconditional love and His infinite compassion and of our innate and eternal brotherhood and sisterhood, that we may lay down our arms and forever live as the brothers and sisters we have always been.

The composer of universal sacred music feels a calling to express a spiritual quality or truth that, more often than not, transcends the boundaries of specific traditions. For example, if he or she wishes to convey that there is one unconditionally loving God for all humanity, he or she may do so in a variety of ways: by choosing a text that, while rooted in one tradition, expresses the universality of God, or one that combines the expression of that truth from more than one tradition. Or the composer may write a text that does not purport to come from any specific tradition, then set the text to music. This is the point at which a special vibration may be transmitted to the listener:



Guani Ji Muktar Singh, head priest of the Sikh Cultural Society, offers prayers to begin the festival.
Photo: Pavel Antonov



Dafir Ouazzani (left) from Morocco sings with Maya Raviv of Israel during the performance of her composition Echad. Photo: Pavel Antonov

the vibration of the next step in the evolution of sacred music that reaches the highest places in our hearts and minds and thus has the potential to bring us greater Light.

Another aspect of universal sacred music that can touch us so deeply is that in many such pieces one finds people of different cultures and faiths (and sometimes historically opposing ones) performing together and singing the same message, thus viscerally emphasizing our fundamental brotherhood and sisterhood. Inspired by music, we can be reminded of our universal kinship, the common ground, so often forgotten, that we share, and we can leave with renewed hope.

Can universal sacred music play a role in our lives, and in our worship, no matter what our tradition? It is my conviction that there should be concerts of universal sacred music, and such music could be included in worship services of any religion, even if music does not normally play a significant role in a given form of worship or fellowship. Music can thus help awaken us to the true nature of God – which is by no means absent from existing traditions but can be obscured by certain beliefs. In interfaith gatherings universal sacred music can play a role by helping to emphasize the commonality all human beings have regardless of their faith. Interfaith events are important to us all, as they provide a forum for dialogue, mutual acceptance, and the will to celebrate life together in the same place despite our differences.

But of those people who profess not to believe in the existence of God, or whose spiritual practice may not include worship at all? There must also be an aspect of universal sacred music that includes such people, as it is intended to reach out to every human being regardless of belief. And there is: we can all relate to the concept and the feeling of universal brotherhood and sisterhood, wherever it may come from, or to the feeling of compassion for each other as we go through the sufferings and challenges of life. This does not mean, however, that the texts of such music need to be so general that they carry no convictions. Let everyone take what he or she will from universal sacred music and from the new spirituality that is moving throughout the world. It remains my profound belief that ultimately everyone's heart will come to know the creative spirit that is infinitely greater than us all, and the timeless love and compassion given to us by that great spirit, whom many call God. Music can help us grow toward that goal.

Notes & Comments

Mosque Design Challenge for Architecture Students



University of Hartford architecture student Stefanie Leontiadis presents her mosque design. *Photo: Michael J. Crosbie*

This past fall semester, a dozen architecture graduate students at the University of Hartford in Connecticut immersed themselves in the history and practices of Islam, to design a 15,000-square-foot mosque and Islamic Center for a site not far from the Connecticut State Capitol. The design challenge was to understand the culture, history, and teachings of Islam and to translate the rituals, worship practices, and building precedents of this religion into a contemporary worship space that would also serve the needs of the Greater Hartford Islamic community. Only one student in the class was a Muslim, so the project presented a chance for the students to "get out of their skins," so to speak, and work in a non-Western tradition.

The project started with the students conducting research on the history of Islam, its architectural and art traditions, the growth of the Islamic community in the U.S. and particularly in the Hartford region, the challenges faced by this community in its worship traditions and religious observances, Islamic religious practices, and even modes of dress and daily prayer. The students and their design studio professor, *Faith & Form* editor Michael J. Crosbie, visited the Duncan Black Macdonald Center for the Study of Islam and Christian-Muslim Relations at the Hartford Seminary for a crash course on Islamic history and mosque art and architecture, presented by Hartford Seminary doctoral student Suendam Birinci. The class also had an opportunity to visit the Greater Hartford Mosque, which at the time occupied a converted single-family house in Berlin, Connecticut. After attending a Friday prayer service, the students and their professor toured a nearly completed new mosque center designed by Edificio Architects of Hamden, Connecticut. A tour by the mosque director, Ali Antar, allowed the students to see the design of ablution and worship spaces.

At the end of the four-week project, the students presented their designs to a review panel including Birinci, Edificio architect Paul Fioretti, Hartford architecture professors Kendra Schank Smith and Al Smith, mosque architect Anwar Hossain of The Lawrence Associates, Angela D. Cahill of Schoenhardt Architecture, and architect Stephanie Degen-Monroe. The challenge of the site was to relate to nearby Hartford landmarks and to create a sense of place for the Islamic community. Many of the designs evolved from the study of mosque precedents and building traditions, translated into more contemporary idioms. The larger mission of the design project for these students was to expose future architects to a non-Western cultural and faith tradition that will no doubt assert greater prominence in the U.S. as the country's fastest-growing religion.

Quote of Note

"Music praises God.
Music is well or better able
to praise him than the building of
the church and all its decoration;
it is the Church's greatest ornament."
— Igor Stravinsky, 1882–1971

Patrick Russell, 1963–2007

Patrick Russell, a neuroscientist and Lutheran minister who explored the connections between neuroscience and religious experience, died in January after a short illness. Russell received his B.A. from Boston University and a Ph.D. in particle physics from Princeton. He employed functional brain imaging to study human consciousness at the University of Wisconsin, Madison, and as a Fellow in Theoretical Neurobiology at the Neurosciences Institute in San Diego. With a Master of Divinity degree from Pacific Lutheran Theological Seminary in Berkeley, Russell was an ordained Lutheran minister who served congregations on both coasts. In his dual role as pastor and scientist, he presented lectures and courses on science and religion, most recently as a speaker at a conference in San Diego on religious architecture and neuroscience, sponsored by the Interfaith Forum on Religion, Art and Architecture (IFRAA), a knowledge community of the American Institute of Architects. Russell also helped plan the conference. As a vocal soloist Russell performed in some of the world's great architectural spaces with choral and symphonic groups including the internationally renowned Albert McNeil Jubilee Singers of Los Angeles. Russell served on the IFRAA Advisory Group and chaired the Lutheran Alliance for Faith, Science, and Technology.

An Old Church Gives a New One Room to Grow

All over the U.S. the pattern is the same: old churches, with aging congregations in urban neighborhoods, are struggling to stay alive, while new churches, growing but without the funds to build, look for space for worship. Middlefield First Baptist Church in Birmingham, Alabama, found a solution. According to an article in the *Atlanta Journal-Constitution*, Middlefield Baptist has chosen to give its church

buildings and all its property to the New Beginnings Baptist Church, a growing local congregation in need of a facility. Middlefield was down to about 40 elderly, mostly white parishioners in a 40-year-old building with a 600-seat sanctuary. New Beginnings, with a growing congregation of 200 members, was meeting in other Baptist churches, but had outgrown those facilities. According to the Rev. Eugene Nail of Middlefield Baptist, "Somebody came up with the idea: why don't we just give them the building? It was built with tithes and offerings, and it's the Lord's building anyway." The pastor called the transition an "old ending and a new beginning." Most members of Middlefield's dwindling congregation travel some distance from the suburbs to the church out of loyalty, and will now attend services at churches closer to home. The New Beginnings congregation will take over the property dating from the 1840s, including the buildings, furniture and equipment, and a cemetery. "They are deeding over the property and its contents so their legacy of ministry can continue in this part of the city," says New Beginnings pastor Angulus Wilson. "We can grow in a bigger facility and minister to a hurting community."

Church Architect Honored

Architect Crawford Murphy of Asheville, North Carolina, was inducted into the North American Academy of Liturgy at its annual meeting in Toronto. At the conference, Murphy presented a paper, "Invisible Wall Ministry: A Study of the Modern Churches' Responses to the Great Commission to Go into the World and Minister as it Pertains to Church Facility Planning." In his 30 years as a church architect Murphy has completed 400 church projects across the U.S. and is consulting on the restoration of a large Gothic Christian Community worship complex in Anqing, China, in cooperation with the China Religious Affairs Bureau and the Anglican Church. Murphy is the recipient of two Faith & Form/IFRAA design awards and a Randolph Dumont Church Design Award of the Duke Endowment Rural Church Division.

Divinity School Hosts Global Shelters

What does it mean to build the city of God today? In response to this query, six Global Village Shelters were installed on Sterling Divinity Quadrangle—home of Yale Divinity School, Berkeley Divinity School at Yale, and the Yale Institute of Sacred Music—from January 23 through February 24, 2007. These inexpensively manufactured shelters are made of waterproof cardboard and have been used as transitional homes in Pakistan, Afghanistan, and Grenada. Designers Dan and Mia Ferrara conceived the innovative shelters, which allow unskilled people to assemble them with common tools in under an hour. The installation, curated by *Faith & Form* editorial advisor Judith Dupré, spotlighted the housing crisis afflicting the one in seven people worldwide who live in slums or refugee camps, and provided practical knowledge to seminarians who will eventually work with the world's poorest communities. For more information, visit www.gvshelters.com.



Global Village Shelters were field-tested in 2005 in hurricane-ravaged Grenada after ten years of design development.
Photo: Courtesy of Architects for Humanity

Book Note: An Illustrated History of the Church

Guy Bedouelle's *An Illustrated History of the Church: The Great Challenges* (Liturgy Training Publications, $90), offers a look at how Christianity, with an emphasis on the Roman Catholic Church, has shaped world history through its art and architecture. The 280-page-book's 566 illustrations and engaging text cover Catholicism's history from early Christian times to the present day, as told through its buildings and art works. The author is a professor of church history in the School of Theology at the University of Fribourg in Switzerland, and president of the Center for Dominican Studies of Saulchoir in Paris.

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The editors of *Faith & Form* want to bring its readers the latest news of those involved in the fields of religion, art, and architecture. Send press releases and materials to the attention of Michael J. Crosbie, Editor, *Faith & Form*, c/o Steven Winter Associates, 50 Washington Street, Norwalk, CT 06854; fax: 203-852-0741; email: mcrosbie@faithandform.com.

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One Sunday Morning

Just One More Thing… ✶ Betty H. Meyer

Recently I was sitting in my usual place in church – four rows from the back on the left-hand side – listening to the music and waiting for the service to begin. The church music director, Alan LeVines, had arranged for three special instrumentalists to play, and the music was beautiful. Suddenly an unexpected question entered my mind. How did music originate? Do you suppose someone listened to the singing of birds and experienced such a feeling of serenity and healing that they were determined to create multiple and longer lasting birdsong? Archeologists have found musical instruments that date back as far as 34,000 B.C.E. That was a long time ago, and today we just take music for granted as a part of human life. But when we really listen music is delightful and even curative. Beth Israel Hospital in Boston arranges for ten hours of music a week (often a harp) to be played for its patients. Massachusetts General and Brigham and Women's hospitals are considering doing the same. Music insinuates itself into our consciousness and can help us heal both physically and psychically.

I put my thoughts aside because it was time for the service to begin and for the spoken words of the lay reader and the minister to be heard. I was ready to listen and to be attentive to the meaning of the words, but soon I realized I couldn't hear them. At first I thought it was just me and was embarrassed to find myself studying the stained glass or the arrangement of flowers on the altar. But a number of others complained that they couldn't hear well either. Later, experts were called in and for the first time the building's acoustics were explained in detail. I knew something about acoustics from reading articles in *Faith & Form*, but I had never realized how complicated and important acoustics are – not only for the sanctuary but for every room in the church. In an effort to understand better I spoke to Richard Bergmann, a friend who is an architect, and he sent me page after page on the subject from his personal files.

I learned that if congregants try to deal with the science of acoustics themselves they often make mistakes. I remember once looking through our church archives and being puzzled about why our organ had occupied so many different spaces in the church. Had the original architect's design for its space not been satisfactory? Was the organist unhappy with the acoustics? Our sanctuary has magnificent high arched ceilings and although it has a worshipful aesthetic it is a huge and challenging space for projecting music and the human voice. Not every preacher is Pavarotti! I am suggesting not that we shrink the size of our sanctuaries, but simply that any room, large or small, be designed to be acoustically sound; this becomes especially important as the average age of parishioners increases. Money spent for professional assessments before action is taken is money well spent.

The Sunday morning service ended, and my thoughts lingered on sound as we hear it in music and the spoken word. Music has the ability to move us emotionally, and the spoken word stimulates us intellectually; each can inspire us spiritually. Let us make sure we design our sacred spaces to ensure the clarity of both. F&F

Betty H. Meyer is Editor Emeritus of *Faith & Form* and can be reached by email at bmeyer@faithandform.com

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